UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/564,672 | 05/10/2006 | Shinji Amaike | 36856.1407 | 1649 |

54066 7590 01/24/2008

MURATA MANUFACTURING COMPANY, LTD.
C/O KEATING & BENNETT, LLP
8180 GREENSBORO DRIVE
SUITE 850
MCLEAN, VA 22102

| EXAMINER | |
|---|---|
| ROSENAU, DEREK JOHN | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2834 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 01/24/2008 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JKEATING@KBIPLAW.COM
uspto@kbiplaw.com

TH

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/564,672 | AMAIKE ET AL. | |
| | Examiner | Art Unit | |
| | Derek J. Rosenau | 2834 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *10 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *7-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/13/2006 6/27/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 7-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Mitsuoka et al. (US 6876127).

3. With respect to claim 7, Mitsuoka et al. discloses an ultrasonic transmitting and receiving apparatus (Figs 1A and 2) comprising: a casing including a bottom (item 12a), an outer peripheral wall (item 14), and an inner peripheral wall (item 12b), the outer peripheral wall being integral with the bottom and extending from an inner surface of the bottom (Fig 1A), the inner peripheral wall being integral with the bottom and extending from the inner surface of the bottom (Fig 1A), a space surrounded by the inner peripheral wall and the bottom defining a first recess (Fig 1A), and a space surrounded by the inner peripheral wall, the outer peripheral wall, and the bottom defining a second recess (Fig 1A); a piezoelectric element (item 11) mounted to the bottom and facing the first recess (Fig 1A); and a vibration isolation member (item 13) filling the second recess (Fig 1A).

4. With respect to claim 8, Mitsuoka discloses the ultrasonic transmitting and receiving apparatus according to claim 7, wherein a cross section has an anisotropic shape (Fig 2), the cross section being taken along a direction parallel to the bottom and being defined by an inside surface of the inner peripheral wall.

5. With respect to claim 9, Mitsuoka discloses the ultrasonic transmitting and receiving apparatus according to claim 8, wherein the anisotropic shape is substantially elliptical (Fig 2).

6. With respect to claim 10, Mitsuoka discloses the ultrasonic transmitting and receiving apparatus according to claim 8, wherein a cross section of an inside surface of the outer peripheral wall is circular (Fig 2), the cross section being taken along a direction parallel to the bottom.

7. With respect to claim 11, Mitsuoka discloses the ultrasonic transmitting and receiving apparatus according to claim 9, wherein the bottom includes a thick portion and a thin portion (Fig 1A), the piezoelectric member is mounted to the thick portion (Fig 1A), and the thin portion extends along a major axis of the elliptical shape (Figs 1A and 2).

8. With respect to claim 12, Mitsuoka discloses the ultrasonic transmitting and receiving apparatus according to claim 7, wherein a cross section of an inside surface of the outer peripheral wall is circular (Fig 2), the cross section taken along a direction parallel to the bottom.

9. With respect to claim 13, Mitsuoka discloses the ultrasonic transmitting and receiving apparatus according to claim 7, wherein the bottom includes a thick portion

and a thin portion (Fig 1A), and the piezoelectric element is mounted to the thick portion (Fig 1A).

10. With respect to claim 14, Mitsuoka discloses the ultrasonic transmitting and receiving apparatus according to claim 13, wherein at least a portion of the thin portion faces the first recess (Fig 1A).

11. With respect to claim 15, Mitsuoka discloses the ultrasonic transmitting and receiving apparatus according to claim 13, wherein at least a portion of the thin portion faces the second recess (Fig 1A).

12. With respect to claim 16, Mitsuoka discloses the ultrasonic transmitting and receiving apparatus according to claim 7, wherein a thickness of the inner peripheral wall is equal to or smaller than a thickness of the outer peripheral wall (Fig 1A).

13. Claims 7 is rejected under 35 U.S.C. 102(b) as being anticipated by Mylvaganam et al. (US 49452761).

14. With respect to claim 7, Mitsuoka et al. discloses an ultrasonic transmitting and receiving apparatus (Fig 1) comprising: a casing including a bottom (item 3), an outer peripheral wall (item 5), and an inner peripheral wall (item 7), the outer peripheral wall being integral with the bottom and extending from an inner surface of the bottom (Fig 1), the inner peripheral wall being integral with the bottom and extending from the inner surface of the bottom (Fig 1), a space surrounded by the inner peripheral wall and the bottom defining a first recess (Fig 1), and a space surrounded by the inner peripheral wall, the outer peripheral wall, and the bottom defining a second recess (Fig 1); a

piezoelectric element (item 4) mounted to the bottom and facing the first recess (Fig 1); and a vibration isolation member (item 8) filling the second recess (Fig 1).

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsuoka et al.

17. With respect to claim 17, Mitsuoka et al. discloses the ultrasonic transmitting and receiving apparatus according to claim 7. Mitsuoka et al. does not disclose expressly that the cross section taken along a direction parallel to the bottom being defined by the outside surface of the inner peripheral wall has an anisotropic shape. However, it has been held that a mere change in shape would be obvious to a person of ordinary skill in the art (*In re Dailey*, 149 USPQ 47); therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to form the outside surface of the inner wall to have an anisotropic shape.

***Conclusion***

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Amaike et al. (US 6250162) discloses an ultrasonic transducer having a single peripheral wall, with a piezoelectric element mounted at the bottom of a recess within the wall, wherein the cross section of the inside surface of the wall is

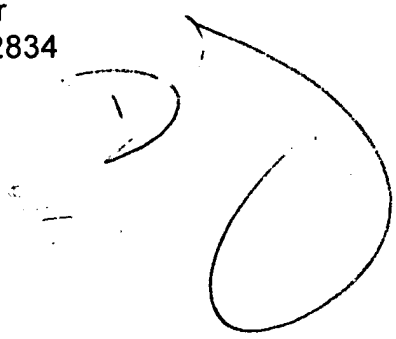
anisotropic, and substantially elliptical in shape, and the bottom has thick and thin portions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek J. Rosenau whose telephone number is 571-272-8932. The examiner can normally be reached on Monday thru Thursday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Derek J Rosenau
Examiner
Art Unit 2834



DJR
1/10/2008